A. I. RISSER.

BOTTLE CORKING MACHINE.

APPLICATION FILED AUG. 7, 1918.

1,306,502.

Patented June 10, 1919.

3 SHEETS—SHEET 1.

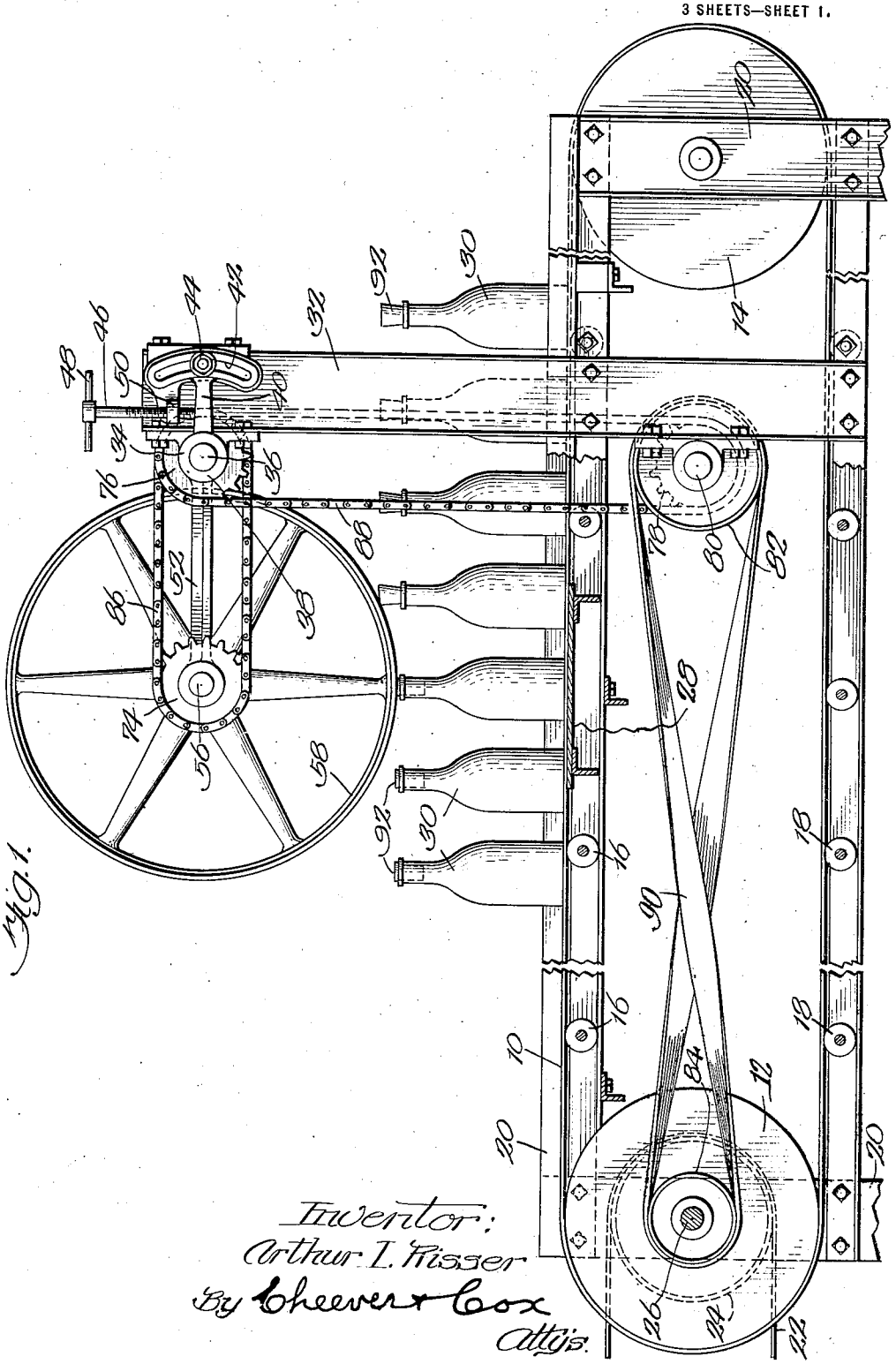


Fig. 1.

Inventor:
Arthur I. Risser
By Cheever & Cox
Atty's.

A. I. RISSER.

BOTTLE CORKING MACHINE.

APPLICATION FILED AUG. 7, 1918.

1,306,502.

Patented June 10, 1919.

3 SHEETS—SHEET 2.

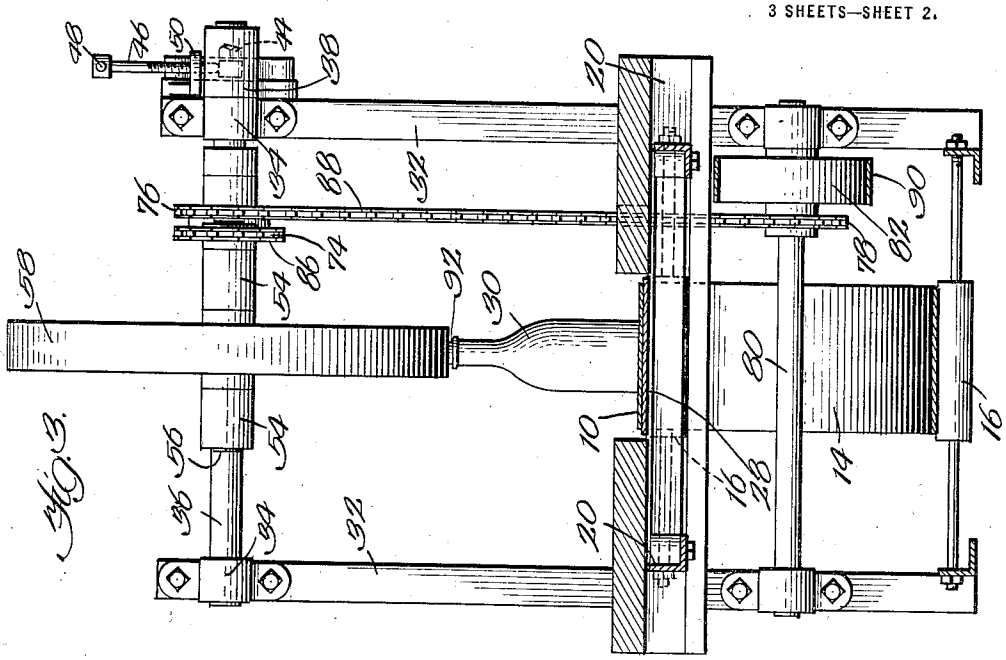


Fig. 3.

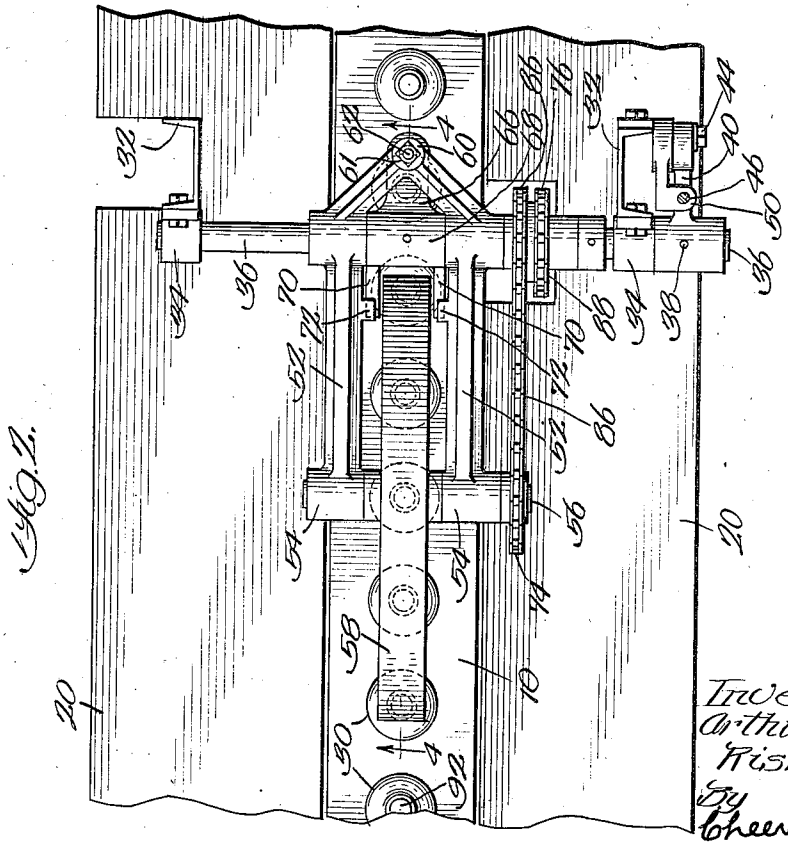


Fig. 1.

Inventor.
Arthur I. Risser
By Cheever & Cox
Attys

A. I. RISSER.

BOTTLE CORKING MACHINE.

APPLICATION FILED AUG. 7, 1918.

1,306,502.

Patented June 10, 1919.

3 SHEETS—SHEET 3.

Fig. 4.

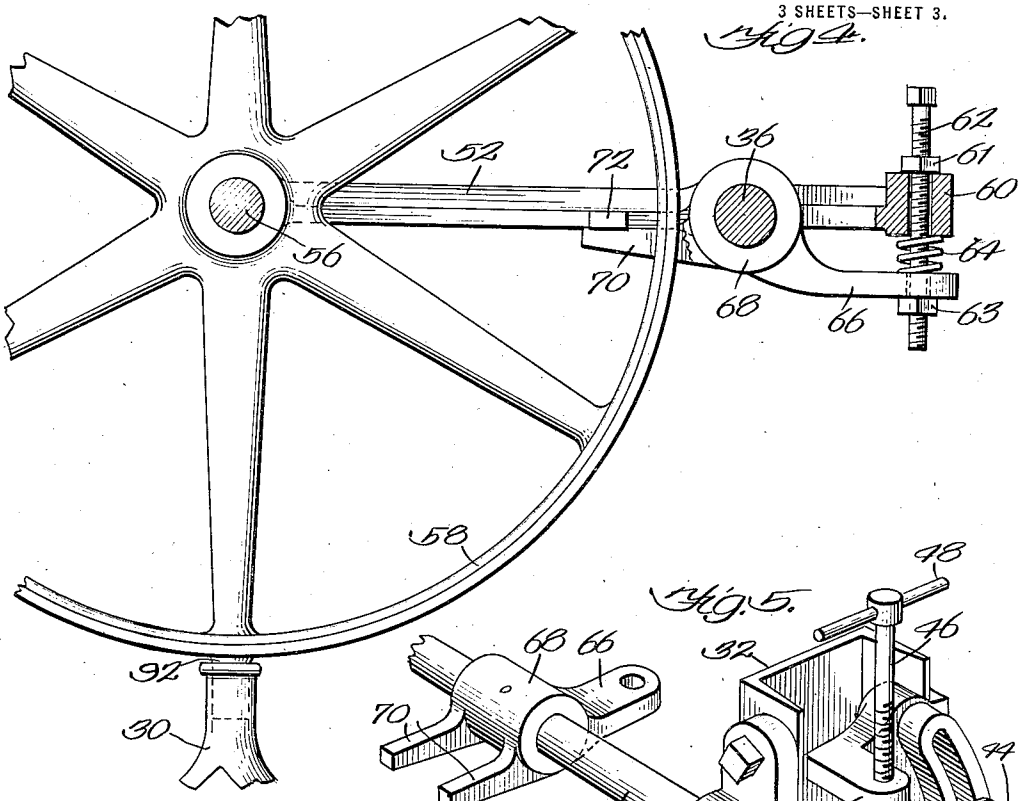


Fig. 5.

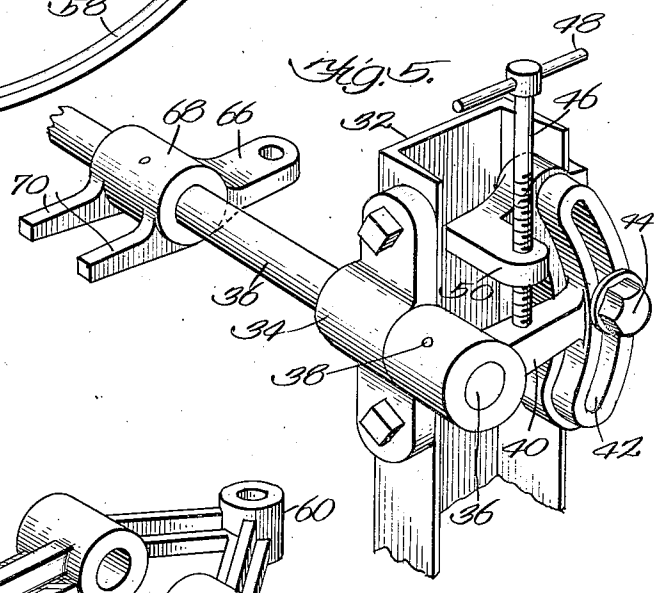
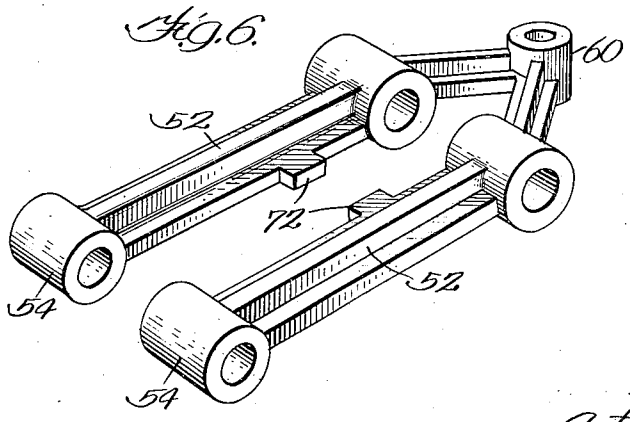


Fig. 6.



Inventor:
Arthur I. Risser.
By Cheever & Cox
Atty's

UNITED STATES PATENT OFFICE.

ARTHUR I. RISSER, OF CHICAGO, ILLINOIS, ASSIGNOR TO U. S. BOTTLERS' MACHINERY COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

BOTTLE-CORKING MACHINE.

1,306,502. Specification of Letters Patent. Patented June 10, 1919.

Application filed August 7, 1918. Serial No. 248,686.

To all whom it may concern:

Be it known that I, ARTHUR I. RISSER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Bottle-Corking Machines, of which the following is a specification.

The object of this invention is to provide an automatic machine for pressing corks into bottles to close them, and to perform this operation upon a maximum number of bottles with a minimum amount of machinery and human help. The invention consists in mechanism for carrying out the foregoing objects, which can be easily and cheaply made, which is satisfactory in operation, and is not readily liable to get out of order. More particularly, the invention consists in means for allowing the machine to adjust itself to variations in character of bottles of a given size operated upon by it at a given time and for adjusting the machine so that it may be made to operate at the will of the operator upon distinctly different classes or sizes of bottles. More particularly, the invention consists in the features and details of construction which will be hereafter more fully set forth in the specification and claims.

Referring to the drawings, in which similar numerals indicate the same parts throughout the several views,

Figure 1 is a side elevation of mechanism illustrating this invention in its preferred form.

Fig. 2 is a plan view of the essential operating parts of the machine.

Fig. 3 is an end view partially in section, taken at the left hand end of the mechanism illustrated in Fig. 2.

Fig. 4 is a side detail elevation taken on the line 4—4, of Fig. 2, showing the spring tension device for allowing the machine to adjust itself to variations of bottles in a given class operated upon by it.

Fig. 5 is a perspective view of mechanism for adjusting the machine to take care of different sizes of bottles.

Fig. 6 is a perspective view of a lever mechanism.

In arranging for the operation of the mechanism illustrating this invention, a normally horizontal longitudinally propelled conveyer belt 10 is provided, the same in the particular case here illustrated, passing over pulleys 12 and 14 and intermediate rollers 16 and 18, journaled in a suitable table frame 20. Endless conveyer 10 is propelled by power suitably, applied, in the case here illustrated, through a belt 22, passing over pulley 24, on shaft 26 which drives pulley 12. Conveyer 10 travels over a fixed table member 28 located in rigid position underneath the presser mechanism (Fig. 1), so that any bottle 30 carried by belt 10 is given rigid support while over this table 28.

Rising from main frame 20, are two upright channel iron supports 32, carrying brackets 34 for a horizontal shaft 36. Rigidly secured to shaft 36, for instance by pin 38, is an arm 40, carrying slotted yoke 42, slidable over locking bolt 44, also mounted on the adjacent upright channel 32.

By adjusting the bolt 44 in slotted yoke 42, shaft 36 may be selectively secured in different angular positions. Screw 46, operated by a handle 48, threaded through a suitable fixed support 50, engaging arm 40, Fig. 5, is a slow motion adjusting device for arm 40. By rotating the handle 48, and screw 46, shaft 36 is rotated in a clockwise direction, as viewed in the figures, while, on rotation of the parts in the reversed direction, shaft 36 moves under gravity action of its attached parts in the opposite direction.

Rotatably mounted on shaft 36 is the U-shaped lever mechanism 52, shown in perspective in Fig. 6, carrying on one end bearings 54 for the shaft 56 of cork presser wheel 58. On the opposite or closed end of this U-shaped lever member 52 is a lug or block 60, perforated to embrace a screw threaded bolt 62, (Fig. 4). The underside of lug 60 engages the spring 64, surrounding the bolt 62, and bearing on the upper surface of a bell crank arm 66. This arm 66 is integral with a hub 68 rigidly secured on shaft 36, while the opposite arm 70 of the bell crank extends under the lever 52 and detachably engages lugs 72 inwardly projecting from the side members of lever 52.

The weight of presser wheel 58 tends to swing lever 52 in a counter-clockwise direction about shaft 36 to hold the parts in the position shown in Fig. 4, but any unusual

pressure against the underside of wheel 58 tends to move block 60 downward against the action of spring 64. The parts are returned to normal position by gravity and the action of spring 64 whenever the abnormal pressure under wheel 58 is removed.

The mechanism at the right hand end of Fig. 4 just described allows the wheel 58 to move a sufficient substantially vertical distance with reference to the bottle to be corked, by gravity and with the assistance of spring 64 to insure the pressing of the cork into the bottle. As the distance from shaft 56 to the center of shaft 36 is greater than the distance from the latter shaft to the center of spring 64, it will readily be seen that a given movement of spring 64 causes a greater relative vertical movement of wheel 58; that is, the movement of the spring is magnified at the wheel. This is important in producing an effective bottle corking machine, owing to the fact that the cork to be inserted is a relatively long, narrow object and comparatively speaking, requires considerable more movement to force it into place than can ordinarily be effectively produced by a coiled spring moving only its normal length.

The movement of spring 64 is adjustably determined by selectively positioning nuts 61 and 63 on bolt 62.

The manipulation of the mechanism of Fig. 5 allows for permanent movement of shaft 56 and consequently the bodily movement of wheel 58 and the controlling spring mechanism 54 up and down, thus permitting the handling of selectively different sizes of bottles at different times.

Power is communicated to wheel 58 by any suitable means, to drive it in a clockwise direction as viewed in the drawings, at a circumferential speed equal to the speed of travel of the upper surface of belt 10 from right to left, as viewed in Fig. 1. In the particular case here illustrated, this rotation of wheel 58 is accomplished through the agency of a sprocket wheel 74, rigid on shaft 56, a pair of sprocket wheels 76, rigidly connected together and loosely journaled on shaft 36, a sprocket wheel 78, rigid on shaft 80, a pulley 82 rigid on said shaft, a pulley 84 rigid on shaft 26, suitably placed sprocket chains 86 and 88, and a belt 90 all arranged as shown. The specific means of thus unifying the speed of wheel 58 and belt 10 may be varied without departing from this invention.

In the general operation of the device power is supplied to shaft 26 to drive belt 10 over table 28 from right to left, and consequently rotatable wheel 58 in a clockwise direction. The operator now places bottles 30, one at a time, upon the right hand end of the moving belt 10, as viewed in the drawings, and simultaneously places a tapered cork 92 in each such bottle. As the belt travels from right to left, these bottles with loosely inserted corks as shown in the four bottles at the right of Fig. 1 are carried under the wheel 58. As this wheel has the same circumferential speed as the longitudinal speed of the belt, the bottles 30 are not disturbed in passing along with the belt by coming in contact with the circumference of the wheel. As the bottles travel under the wheel, the circumference of the wheel engages each successive cork and presses it into sealed position in its bottle as is shown in the three left hand bottles of Fig. 1.

As bottles of a given style and size, such for instance as those shown in Fig. 1, vary somewhat in mechanical details about the mouth, owing to irregularities in manufacture, some little variation in pressure applied to the corks is required, and this is provided for by allowing the wheel 58 to move up and down slightly under the action of spring 64 as the bottles pass under it in the manner heretofore described.

Owing to the uniformity of speed of the conveyer and presser wheel no holding devices are required for retaining the bottles on the conveyer.

When it is desired to adapt the machine to pressing bottles of a different height, either slightly taller or slightly shorter than those shown in the drawings, the adjustment is made by loosening bolt 44, and manipulating the handle 48 to turn the screw 46, the screw 46 being rotated in one direction to move arm 40 downward, and consequently the wheel 58 upward, when taller bottles are to be worked upon, and in the opposite direction when bottles of less height are to be taken care of.

In actual practice, a single machine of this invention, as here shown and described, has, with two operators, done an amount of corking which, with devices heretofore in use, requires a plurality of much more complicated machines with several operators each.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a bottle corking machine, a continuously moving conveyer member, a wheel above and clear of the conveyer member, means driving the wheel at the same circumferential speed as the longitudinal speed of the adjacent part of the conveyer member, means yieldingly urging the wheel toward the conveyer member, and means between the urging means and the wheel adapted to magnify at the wheel the movement of the urging means.

2. In a bottle corking machine, a continuously moving conveyer member, a wheel above and clear of the conveyer member,

means driving the wheel at the same circumferential speed as the longitudinal speed of the adjacent part of the conveyer member, spring mechanism normally urging the wheel toward the conveyer member, and means connecting said spring mechanism to the wheel adapted to magnify at the wheel the length of movement of the spring.

3. In a bottle corking machine, a continuously moving conveyer member, a wheel above and clear of the conveyer member, means driving the wheel at the same circumferential speed as the longitudinal speed of the adjacent part of the conveyer member, spring mechanism normally urging the wheel toward the conveyer member, means connecting said spring mechanism to the wheel adapted to magnify at the wheel the length of movement of the spring, and means adjustably limiting the amount of such spring movement of the wheel.

4. In a bottle corking machine, a continuously moving conveyer member, a wheel above and clear of the conveyer member, means driving the wheel at the same circumferential speed as the longitudinal speed of the adjacent part of the conveyer member, means yieldingly urging the wheel toward the conveyer member, and means for bodily varying the position of the wheel mechanism and its above connected devices toward and from the conveyer member, whereby selected different sizes of bottles may be worked upon by the machine.

5. In a bottle corking machine, a continuously moving conveyer member, a wheel above and clear of the conveyer member, means driving the wheel at the same circumferential speed as the longitudinal speed of the adjacent part of the conveyer member, means normally urging said wheel toward the conveyer member of such a character that it permits the wheel to yield from said position to take up irregularities in the work handled, and means for bodily varying the position of the wheel mechanism and its above connected devices toward and from the conveyer member, whereby selected different sizes of bottles may be worked upon by the machine.

6. In a bottle corking machine, a continuously moving conveyer member, a wheel above and clear of the conveyer member, means driving the wheel at the same circumferential speed as the longitudinal speed of the adjacent part of the conveyer member, means normally urging said wheel toward the conveyer member of such a character that it permits the wheel to yield from said position to take up irregularities in the work handled, means adjustably limiting the amount of such yielding movement of the wheel, and means for bodily varying the position of the wheel mechanism and its above connected devices toward and from the conveyer member, whereby selected different sizes of bottles may be worked upon by the machine.

7. In mechanism of the class described, a suitable supporting table, a continuous conveyer belt movable over the top of said table, mechanism for driving said conveyer belt, a lever arm pivotally mounted above the table, a suitable support for said lever arm, a wheel journaled upon said lever arm, means for driving said wheel upon said lever arm at a circumferential speed substantially equal to the lineal speed of the belt and in the same direction, and a spring tension device on said lever arm permitting slight movement of the lever arm and wheel toward and from the conveyer belt, for the purposes set forth.

8. In mechanism of the class described, a suitable supporting table, a continuous conveyer belt movable over the top of said table, mechanism for driving said conveyer belt, a lever arm pivotally mounted above the table, a suitable support for said lever arm, a wheel journaled upon said lever arm, means for driving said wheel upon said lever at a circumferential speed substantially equal to the lineal speed of the belt and in the same direction, a spring tension device on said lever arm permitting slight movement of the lever arm and wheel toward and from the conveyer belt, and mechanism for rotating said lever about its pivotal point and for securing it in a new selected position with reference thereto without interfering with said spring tension device, for the purposes set forth.

9. In mechanism of the class described, a suitable supporting table, a continuous conveyer belt movable over the top of said table, mechanism for driving said conveyer belt, a lever arm pivotally mounted above the table, a suitable support for said lever arm, a wheel journaled upon said lever arm, means for driving said wheel upon said lever arm at a circumferential speed substantially equal to the lineal speed of the belt and in the same direction, means for bodily rotating said lever about its pivotal point to vary the position of the wheel with reference to the conveyer member, and means for locking the lever and wheel in said new position without interfering with the application of power to the wheel to cause its simultaneous movement with the conveyer member.

10. In mechanism of the class described, a conveyer member, means for causing it to travel, a shaft extending transversely of the conveyer member at a distance therefrom, a lever member journaled upon said shaft, a presser wheel carried by said lever member, means for driving said presser member, a bell crank device rigid upon said shaft having one arm supporting the lever member which carries the wheel to limit the move-

ment of the wheel toward the conveyer member, an adjustable spring device between said lever member and the other arm of the bell crank permitting limited spring-controlled movement of the lever and wheel away from the conveyer member, and means for causing said wheel to rotate regardless of its position with reference to the conveyer member.

11. In mechanism of the class described, a conveyer member, means for causing it to travel, a shaft extending transversely of the conveyer member at a distance therefrom, a lever member journaled upon said shaft, a presser wheel carried by said lever member, means for driving said presser member, a bell crank device rigid upon said shaft having one arm supporting the lever member which carries the wheel to limit the movement of the wheel toward the conveyer member, an adjustable spring device between said lever member and the other arm of the bell crank permitting limited spring-controlled movement of the lever and wheel away from the conveyer member, means for causing said wheel to rotate regardless of its position with reference to the conveyer member, an arm extending from said shaft, adapted when rocked, to bodily move the first mentioned lever arm and all attached parts about the axis of said shaft, and means for locking said last arm in selected position, for the purposes set forth.

In witness whereof, I have hereunto subscribed my name in the presence of two witnesses.

ARTHUR I. RISSER.

Witnesses:
A. J. POHLMAN,
DWIGHT B. CHEEVER.